

MEMORANDUM OF UNDERSTANDING
CALIFORNIA ENDANGERED SPECIES ACT
REVISED

by and between

CALIFORNIA DEPARTMENT OF WATER RESOURCES AS REPRESENTED
BY MR. BRIAN SCHREIER

and

THE CALIFORNIA DEPARTMENT OF FISH AND GAME

regarding

TAKE OF WINTER-RUN CHINOOK SALMON AND SPRING-RUN CHINOOK SALMON
FOR THE PURPOSE OF IMPLEMENTING A PREDATION EFFECTS STUDY ON
NATIVE FISHES IN THE SACRAMENTO-SAN JOAQUIN DELTA

This California Endangered Species Act Memorandum of Understanding ("CESA MOU") is made and entered into by and between the Department of Water Resources as represented by Mr. Brian Schreier, 3500 Industrial Boulevard, West Sacramento, California 95691, and the California Department of Fish and Game (DFG), collectively "the parties."

The purpose of this CESA MOU is to provide authorization for the incidental capture and handling of California state-listed winter- and spring-run Chinook salmon (*Oncorhynchus tshawytscha*) for the purpose of implementing a predation effects study on native fishes in the Sacramento-San Joaquin Delta. This CESA MOU authorizes the take of the endangered winter-run Chinook salmon and the threatened spring-run Chinook salmon under the authority of section 2081 of the California Fish and Game Code. The permitted activities are described in this CESA MOU.

WITNESSETH

WHEREAS, DFG has jurisdiction over the conservation and protection of fish and wildlife, and native plants and their habitats and holds those resources in trust of the people of California (California Fish and Game Code Section 1802); and

WHEREAS, DFG may authorize through memorandums of understanding, public agencies to take or possess any endangered species, threatened species, or candidate species for management purposes. [California Fish and Game Code Section 2081(a)]; and

WHEREAS, the project will assist in identifying potential predation levels within the Sacramento-San Joaquin Delta, the potential differences in predation rates of native and non-native species, and the consumptive rates of predators on juvenile Chinook salmon through their migration corridors; and

WHEREAS, the winter-run Chinook salmon is an endangered species and the spring-run Chinook salmon is a threatened species by the State of California Fish and Game Commission pursuant to the California Endangered Species Act; and

WHEREAS, individual adult Chinook salmon (winter- and spring-run) may be captured during the sampling activities associated with this project; and

WHEREAS, the information collected will provide information on the potential levels of predation that native fish species may encounter while migrating through or residing in the Sacramento-San Joaquin Delta.

NOW THEREFORE, THE PARTIES HERETO AGREE AS FOLLOWS:

1. SUMMARY OF ACTIVITIES

The purpose of this project is to collect the predators and extract the predators' stomachs to be used for genetic determination of presence or absence of target prey species. Four potential migration corridors for out-migrating Chinook smolts will be sampled, including Steamboat Slough, Miner Slough, Georgiana Slough, and the Sacramento River. Additionally, predators will be sampled from Liberty Island and the Sacramento Deep Water Ship Channel (DWSC). Finally, samples will be collected from the lower Sacramento River downstream of the confluence of Steamboat Slough but upstream of the City of Rio Vista. Sampling will not be conducted within two kilometers of the upstream and downstream extents of each sampling reach to create separation between the different sampling areas.

Within each of seven sampling areas, ten stations will be chosen at random. All stations will be sampled once in December or January (as early as possible in the winter season, but after the first flush event has occurred) and again in April, with sampling to be repeated during winter/spring 2011-2012 **2012-2013** and 2012-2013 **2013-2014**. All stations will be sampled over the course of 15 days for each sampling period, and over the course of the entire study each station will be sampled four times. Target predator species will include age-1+ striped bass, largemouth bass, smallmouth bass, and Sacramento pikeminnow.

At each station, predators will be sampled using gill nets (60 m x 2 m; randomized panels of 63.5, 76.2, 88.9, 101.6, 127, and 152.4 mm stretch mesh). Gill nets will be set for 45 minutes with one set per station. The orientation of the net to shore will be randomized between perpendicular (70% of sets) and parallel (30% of sets), so as to effectively sample all targeted predator species. All fishes collected in the gill nets will be identified to species and their fork length measured to the nearest millimeter. Samples will be collected between dawn and dusk, across all tidal stages. Water quality parameters (temperature, pH, electrical conductivity, turbidity, and dissolved oxygen), secchi depth, water depth, GPS coordinates, and tide/current conditions will be recorded at each set. Environmental variables (depth, presence of submerged or floating aquatic vegetation, bank and substrate type) will also be recorded at each of the sampling locations in order to relate predation rates to habitat.

All reasonable measures will be taken to limit take and harm to adult salmonids and sturgeon during gill net sampling. While the net is fishing, crew members will actively monitor the net for salmonids and sturgeon catch and any individuals observed will be immediately removed. Crew members will also observe the immediate area for signs of sea lion activity, and if any are observed that sampling area will be abandoned for two days. Additionally, if any listed salmonids or sturgeon are captured during the course of sampling, that entire sampling area will be abandoned for two days to allow for ESA-listed species to move through the system. Salmonids and sturgeon will be brought aboard by supporting their bodies with the net, and individuals caught by their gills will be removed by cutting net strands to avoid any unnecessary trauma to the fish. A recovery tub equipped with air bubblers will be kept onboard the sampling vessel to allow for salmonids and sturgeon to recover before their release back into the wild. To facilitate quick processing of non-target and ESA-listed species, all fish will be removed from the net before processing of predators begins.

DFG is authorizing take of winter- and spring-run Chinook salmon adults associated with the proposed predation study following the conditions and reporting measures listed below.

2. REPORTING REQUIREMENTS

A. Annual Reports

1. The Department of Water Resources, represented by Mr. Brian Schreier shall provide a project summary report referencing the number of either winter- or spring-run caught during the predator capture activity. This project summary report shall contain the following information: run of Chinook caught, date, size, time of day, location, and general health of the fish when released. These reports will be due to the contact listed below no-later-than December 20, ~~2012~~ **2013** (contains year 2011 and 2012 **2012-2013**), and December 20, ~~2013~~ **2014** (contains 2013).
2. If an adult Chinook salmon (any run) mortality occurs during predator capture activities, then DFG shall be notified within 24 hours of the event at the contact information listed below.

The report shall include all activities of a given period listed above and are on the dates and schedule listed above. Copies of the annual report shall be sent to:

Ms. Andrea Boertein,
Department of Fish and Game, Bay Delta Region
4001 North Wilson Way, Stockton, CA 95205
Telephone: (209) 942-6070, Email: abortein@dfg.ca.gov.

3. ADDITIONAL CONDITIONS

- A. The following conditions and measures shall be implemented during your sampling activities to limit take and harm to adult salmonids during gill net sampling:

1. While the net is fishing, crew members will actively monitor the net for salmonid catch and any individuals observed will be immediately removed.
 2. Crew members will also observe the immediate area for signs of sea lion activity, and if any are observed that sampling area will be abandoned for two days.
 3. If listed salmonids are captured during the course of sampling, that entire sampling area will be abandoned for two days to allow for ESA-listed species to move through the system.
 4. Salmonids will be brought aboard by supporting their bodies with the net, and individuals caught by their gills will be removed by cutting net strands to avoid any unnecessary trauma to the fish.
 5. A recovery tub equipped with air bubblers will be kept onboard the sampling vessel to allow for salmonids to recover before they are released back into the wild.
 6. All non-targeted and ESA-listed species will be quickly processed before processing of predators begins.
- B. Once a total of five (5) adult winter- or spring-run Chinook salmon mortalities are reached during the terms of this permit all sampling shall stop and the permit holder will notify DFG. DFG at that time may propose some alternative operations that could limit the mortality of Chinook salmon covered by this permit
- C. All equipment shall be maintained such that there would not be any leaks of fluids such as gasoline, oils, or solvents.
- D. The project-lead shall provide a copy of the final report outlining the results of the predation study covered under this MOU. The final report detailing the results of the investigation shall be due on or before December 31, 2014 **2015** to the contact listed above.
- E. This CESA MOU must be kept at the sampling site along with a current Scientific Collecting Permit while conducting the work described herein.

4. RESPONSIBLE PARTIES

The study activities will be conducted by the Department of Water Resources, represented by Mr. Brian Schreier and his co-workers.

5. FEDERAL ENDANGERED SPECIES ACT

The winter- and spring-run Chinook salmon are both federally listed under the federal Endangered Species Act (ESA) of 1973, as endangered and threatened, respectively. The USFWS and National Marine Fisheries Service may require the Department of Water resources to obtain take authority for the activities described herein under the authority of the ESA.

6. EFFECTIVE DATE AND TERMINATION

Unless terminated sooner by either party of this CESA MOU giving thirty (30) days prior written notice of earlier termination, this CESA MOU shall be immediately effective upon execution by the parties and will terminate on **December 31, 2013 2014**, inclusive.

7. MODIFICATIONS

Amendments to this CESA MOU may be proposed by either party and shall become effective when a written modification to this document is signed by both parties. The signed written modification shall be appended to this CESA MOU.

8. DISCLAIMER

This CESA MOU contains DFG's requirements for the authorization of take for winter- and spring-run Chinook salmon for the implementation of this proposed study by the Department of Water Resources as represented by Mr. Brian Schreier pursuant to CESA. The Department of Water Resources as represented by Mr. Brian Schreier understands and recognizes that this CESA MOU does not constitute or imply compliance with other applicable state or federal laws and regulations and does not create an entitlement to proceed with the project.

DFG shall incur no fiscal obligation under this CESA MOU.

*IN WITNESS WHEREOF, THE PARTIES HERETO HAVE EXECUTED THIS MOU TO BE
IN EFFECT AS OF THE DATE LAST WRITTEN BELOW.*



Signature

3/7/12

Date

Mr. Brian M. Schreier
Department of Water Resources
West Sacramento, California



Signature

3/2/12

Date

Scott Wilson, Acting Regional Manager
Bay Delta Region
Department of Fish and Game
Napa, California